

## ABSTRACT OF THE DISCLOSURE

A system for treating atrial fibrillation includes a stent and a delivery catheter for carrying the stent to a treatment site. The stent is self-expanding, for example, being formed of a shape memory alloy, and is configured to lodge against the interior wall of a pulmonary vein. The stent may be formed as a loop, helix, progressively wound helix or other suitable shape, and in one embodiment has an exposed proximal portion including an ablation region that contacts and subtends a circumference of the vein, or contacts endocardial wall tissue along a circumferential path at the ostium. The proximal portion is attached to an energy delivery line in the catheter to energize the stent and ablate tissue in the circumferential region, forming a lesion to block conduction across the ostium or preventing trigger signals originating in the pulmonary vein from initiating or sustaining fibrillation in the atrium. The stent also provides support for the vessel wall, reducing the likelihood of developing pulmonary vein stenosis. The stent may also be deployed without concurrent or concomitant ablation, to prevent or treat primary or secondary pulmonary vein stenosis.

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